

REMARKS

Reconsideration and allowance of the above-identified application are respectfully requested.

Claims 1-42 are currently pending, wherein claims 1, 8, 15, 22, 29 and 36 are independent. Claims 37-42 have been amended.

Applicants note with appreciation the characterization of claims 1-42 as being allowable if rewritten or amended to overcome the objections set forth in the Office Action.

Applicants note with appreciation the acknowledgment by the Patent Office of the Information Disclosure Statements previously submitted to the Patent Office.

Applicants would like to thank Examiners Sam Ahn and Young Tse for the personal interview conducted on November 18, 2004. In compliance with M.P.E.P. § 713.04, the substance of that interview is incorporated in the foregoing amendments to the claims and in the following remarks.

In the first section of the Office Action, Figures 1 and 2 are objected to, because these figures should be designated by a legend such as "Prior Art," because only that which is old is allegedly illustrated. Applicants hereby amend Figures 1 and 2 to include the designation "Prior Art." Consequently, Applicants hereby submit two (2) sheets of formal drawings for Figures 1 and 2 for review by the Patent Office in connection with the above-identified application, each sheet marked "REPLACEMENT SHEET." Should the enclosed drawings require changes, it is respectfully requested that the Patent Office notify the undersigned of same. Accordingly, reconsideration and withdrawal of these grounds of objection are respectfully requested.

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In the second section of the Office Action, the disclosure is objected to, because the application serial numbers of the applications cited in the specification should be updated. Applicants hereby amend the specification to update the application serial numbers of the aforementioned applications. Accordingly, reconsideration and withdrawal of these grounds of objection are respectfully requested.

Applicants have reviewed the specification for clarity for the convenience of the Patent Office. Applicants hereby amend the specification merely to clarify the language of the specification. The amendments to the specification are fully supported by the specification. No new matter has been introduced by way of these amendments.

During the interview, the objection of claims 1-42 for certain informalities was discussed. No agreement was reached. These objections are respectfully traversed.

The Patent Office has objected to claims 1, 8, 15, 22, 30 and 36, because the recitation of " H_u^{-1} " is allegedly without further description with its relationship to " H_u ". During the interview, the Patent Office agreed that the recitation of the term " H_u^{-1} " is clear and precise. The Patent Office agreed to withdraw the objection to claims 1, 8, 15, 22, 30 and 36.

The Patent Office has objected to claims 2, 9, 16, 23 and 37, because the definition of " N_p " and " N_u " allegedly needs to be recited. During the interview, the Patent Office agreed that the recitation of the terms " N_p " and " N_u " is clear and precise. The Patent Office agreed to withdraw the objection to claims 2, 9, 16, 23 and 37.

In addition, the Patent Office has objected to claims 37-42, because ".,," should be deleted and ".,," should be inserted. Merely to facilitate progress in the prosecution of the present application, Applicants hereby amend claims 37-42 to delete ".,," and insert ".,,". These amendments do not narrow or otherwise limit the scope of these claims, are not made

for any purpose related to patentability or to satisfy any statutory requirement, and are fully supported by the present application. No new matter has been introduced by way of these amendment.

It is respectfully submitted that claims 1-3, 7-10, 14-17, 21-24, 28-31, 35-38 and 42 are allowable.

The Patent Office has objected to claims 4, 11, 18, 25, 32 and 39, because the definition of the term “u(i)” and the operation, “ \oplus ,” performed with “bit” and “u(i)” allegedly needs to be recited. Furthermore, the Patent Office has objected to claims 5, 12, 19, 26, 33 and 40, because these claims recite the terms “M1,” “M2” and the operation “*” allegedly without further description of these elements. In addition, the Patent Office has objected to claims 6, 13, 20, 27, 34 and 41, because these claims recite an equation with letters “i,” “s” and “M_i” allegedly without further description. These objections are respectfully traversed.

During the interview, the Patent Office clarified its position regarding the objections to these claims. The Patent Office agreed that the recitations of the term “u(i)” and the operation “ \oplus ” in claims 4, 11, 18, 25, 32 and 39 are clear and precise. The Patent Office agreed to withdraw the objection regarding these terms in claims 4, 11, 18, 25, 32 and 39.

The Patent Office also agreed that the recitation of the operation “*” in claims 5, 12, 19, 26, 33 and 40 is clear and precise. The Patent Office agreed to withdraw the objection regarding this term in claims 5, 12, 19, 26, 33 and 40.

Furthermore, the Patent Office agreed that the recitations of the terms “i” and “s” in claims 6, 13, 20, 27, 34 and 41 are clear and precise. The Patent Office agreed to withdraw the objection regarding these terms in claims 6, 13, 20, 27, 34 and 41.

During the interview, the Patent Office asserted that the terms “bit,” “M1,” “M2” and “M_i” should be defined in their respective claims. These objections are respectfully traversed.

According to M.P.E.P. § 2173.02,

[t]he examiner's focus during examination of claims for compliance with the requirement for definiteness of 35 U.S.C. 112, second paragraph, is whether the claim meets the threshold requirements of clarity and precision, *not* whether more suitable language or modes of expression are available. . . . Some latitude in the manner of expression and the aptness of terms should be permitted even though the claim language is not as precise as the examiner might desire. Examiners are encouraged to suggest claim language to applicants to improve the clarity or precision of the language used, *but should not reject claims or insist on their own preferences if other modes of expression selected by applicants satisfy the statutory requirement.* [M.P.E.P. § 2173.02 (emphasis added)]

Given the “latitude in the manner of expression and the aptness of terms” afforded to the Applicants, it is respectfully submitted that the aforementioned claims are clear and precise and fully comply with the requirements of 35 U.S.C. § 112, second paragraph. Consequently, Applicants respectfully submit that there is no statutory basis for the objections to the claims based on “informalities.”

Furthermore, according to M.P.E.P. § 2173.01,

[a] fundamental principal contained in 35 U.S.C. 112, second paragraph is that applicants are their own lexicographers. They can define in the claims what they regard as their invention essentially in whatever terms they choose *so long as any special meaning assigned to a term is clearly set forth in the specification* Applicant may use functional language, alternative expressions, negative limitations, or any style of expression or format of claim which makes clear the boundaries of the subject matter for which protection is sought. As noted by the court in *In re Swinehart*, 439 F.2d 210, 160 USPQ 226 (CCPA 1971), a claim may not be rejected solely because of the type of language used to define the subject matter for which patent protection is sought. [M.P.E.P. § 2173.01 (emphasis added)]

Furthermore,

[t]he meaning of every term used in a claim should be apparent from the prior art or from the specification and drawings at the time the application is filed When the specification states the meaning that a term in the claim is intended to have, the claim is examined using that meaning, in order to achieve a complete exploration of the applicant's invention and its relation to the prior art. [M.P.E.P. § 2173.05(a)]

Applicants respectfully submit that the specification of the present application clearly defines the meaning of all variables, terms and operations recited in the claims.

With respect to the term "bit" recited in claims 4, 11, 18, 25, 32 and 39, Applicants respectfully note that a "bit" is a binary digit representing either 0 or 1, as would be recognized by those of ordinary skill in the art. In addition, the specification clearly discloses the meaning of the term "bit," as is evidenced from page 13, line 8 to page 16, line 9 of the present application.

With respect to the terms "M1" and "M2" recited in claims 5, 12, 19, 26, 33 and 40, the specification clearly defines these terms as follows:

a matrix's sparseness, rather than a matrix's dimension determine the complexity of matrix multiplication. One way to quantify the complexity of the matrix is to determine the average row weight of \underline{P} . *\underline{P} can be decomposed into two (2) matrices $M1$ and $M2$, such that $\underline{P} = M1 * M2$.* The preferred method of decomposing \underline{P} is by placing the system into echelon form. In the preferred embodiment, $M1$ and $M2$ are each 220×220 matrices. The combined row weight of $M1$ and $M2$, which is ~ 24 , is lower than that of \underline{P} . [present application, page 17, lines 8-14 (emphasis added)]

With respect to the variable " M_i " recited in claims 6, 13, 20, 27, 34 and 41, the specification clearly defines this variable as follows:

a matrix's sparseness, rather than a matrix's dimension determine the complexity of matrix multiplication. One way to quantify the complexity of the matrix is to determine the average row weight of \underline{P} . \underline{P} can be decomposed

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into two (2) matrices M1 and M2, such that $\underline{P} = M1 * M2$. The preferred method of decomposing \underline{P} is by placing the system into echelon form. In the preferred embodiment, M1 and M2 are each 220 x 220 matrices. The combined row weight of M1 and M2, which is ~24, is lower than that of \underline{P} . *In*

general P can be represented as $\prod_{i=1}^s M_i$ in order to reduce the combined row weight. [present application, page 17, lines 8-15 (emphasis added)]

Given that Applicants can be their own lexicographers and that the meaning of these variables and terms is apparent from the specification, contrary to the assertions of the Patent Office, it is respectfully submitted that claims 4-6, 11-13, 18-20, 25-27, 32-34 and 39-41 are clear and precise.

Accordingly, reconsideration and withdrawal of the grounds of objection to claims 1-42 are respectfully requested. If these objections are repeated, the Patent Office is requested to specifically point out the statutory basis and authority for objecting to these claims.

All of the objections raised in the Office Action having been addressed, it is respectfully submitted that the present application is in condition for allowance and a notice to that effect is earnestly solicited. Should the Examiner have any questions regarding this response or the application in general, the Examiner is urged to contact the Applicant's attorney, Andrew J. Bateman, by telephone at (202) 625-3547. All correspondence should continue to be directed to the address given below.

Respectfully submitted,

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IN THE DRAWING FIGURES:

Kindly substitute Figures 1 and 2 of the above-identified application with the enclosed two (2) sheets of formal drawings of Figures 1 and 2, each sheet marked "REPLACEMENT SHEET".